Future Target System R&D

Analysis (and simulation) of MERIT data is ongoing, but the success of the experiment already provides proof-of-principle of a free mercury jet target for megawatt proton beams.

Considerable system engineering is needed before an actual jet target station could be built: 20-T magnet, tungsten-carbide(?) shield, mercury delivery and collection system, remote handling system, radioisotope processing, ……..

Desirable to improve jet quality, and to explore viability of jet axis at 100 mrad to magnetic axis, as proposed in Feasibility Study 2. Would also be good to verify feasibility of recovery of the mercury jet in an open pool.

An opportunity exists to conduct non-beam studies with the MERIT equipment after it is shipped from CERN to ORNL ~ Jan 2009 (presentation by V. Graves).

Such studies would begin with no magnetic field (jet quality, Hg pool), followed by studies with the MERIT magnet powered to 15 (or even 20) T at a new fusion power test facility at ORNL.

Targetry workshops at Oxford, 1-2 or 8-9 May 2008, and at Princeton, early Sept or late Oct 2008.